CENTRALIZED SWITCHING FABRIC SCHEDULER SUPPORTING SIMULTANEOUS UPDATES

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ABSTRACT OF THE DISCLOSURE

A system for servicing data transactions within a processing device using common data paths. The system is broadly comprised of: a plurality of source agents operable to transmit a plurality of data cells; a plurality of destination agents operable to of data cells; a plurality of virtual channels for transporting data cells between the source agents and the destination agents; and a switch. The switch is operable to connect predetermined combinations of the source agents and the destination agents for the transmission of data. The switch generates a plurality of switch processing cycles and processes a plurality of control signals during the switch processing cycles. The control signals processed during the switch processing cycles comprise: a source request signal corresponding to a source agent having a first data cell for transmission to a destination agent; an active state update signal designating the source agent as being active for the transmission of a first data cell; and a grant signal for the transfer of the first data cell from the source agent to a specified destination agent. In the method and apparatus of the present invention, a reload signal is generated during the same switch processing cycle as the grant signal, the reload signal indicates the availability of an additional data cell to transmission in a subsequent data cycle. Using the method and apparatus of the present invention, data is transmitted from a source agent to a destination during every other switch processing cycle, thereby resulting in a substantial increase in the efficiency of data transmission between source agents and destination agents.